

The key to successfully running most substitutes is the durometer and nip relations of the dampening systems rollers. Primary consideration must be given to the metering roller, which requires a somewhat lower durometer than when running alcohol. Normally, metering rollers are supplied with a durometer of 25 – 30 and sometimes will further harden after being run on press. It is recommended that the durometer of the metering roller be reduced to 18 – 22 when running alcohol substitutes. Softer rollers tend to be more water-receptive. Their softness increases the nip between the metering roller and the chrome roller without increasing the pressure.

Some of the problems encountered when using metering rollers of normal hardness include rollers becoming sensitive to ink, as well as water banding, or “ridging” on the chrome roller and metering roller, which results in print streaking. The increased nip created by the softer metering roller tends to smooth out the water film thickness on the chrome roller.

Another necessary deviation from normal conditions when running alcohol substitutes is reducing the nip between the chrome roller and the dampening form roller. Normally, when running alcohol, this nip is between 8 – 10 mm, depending upon the diameter of the rollers. However, when running alcohol substitutes, this nip may have to be reduced to as little as 3 – 5mm to regain the thinned water film created by the increased nip between the metering and chrome rollers, and to induce slippage between the chrome and the form roller. Under normal conditions, the form roller is driven by the oscillator. If there is not enough slippage, the form roller tends to drive the chrome roller.

On one of the typical alcohol dampening systems, the metering and chrome rollers are gear-driven by the dampening system motor, and the form roller is driven by the press. If the form roller begins to drive the chrome roller, roller speed increases. As the dampening system rollers accelerate beyond normal conditions, water tends to build up at the roller ends, causing splashing or spraying. Excessive roller speed also creates undue stress on the dampening system motor, which is a common cause of circuit breaks and motor failures. Ideally, the dampening system should be able to run at the same speed (or slightly faster) with an alcohol substitute than with alcohol.

The skew of the metering roller is another consideration. Some alcohol substitutes work best with the metering roller skewed, while others require parallel positioning of the metering roller to the chrome roller. This reduces pressure in the center of the roller. The metering roller usually must be skewed when the form is running too wet in the middle and dry at the ends. The roller should be set parallel to the chrome roller if the middle of the form is not receiving enough water. The optimum angle of the skew should be determined by experimenting, as it may vary depending upon the particular alcohol substitute being used.